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JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

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(71) Applicant: TOYOTA AUTOM LOOM WORKS LTD

(72) Inventor: TERAHI HIDEAKI

(54) CONNECTING STRUCTURE FOR UPPER PART OF CENTER PILLAR

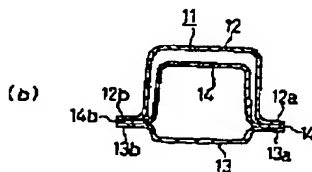
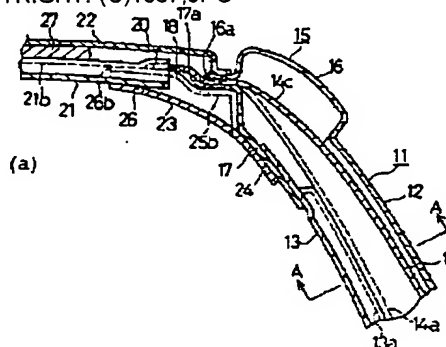
(57) Abstract:

PROBLEM TO BE SOLVED: To prevent a stress concentration from a side surface, by providing a connecting member connected to a center pillar and a roof reinforcing member, between the roof reinforcing member and the center pillar, as well as providing a center pillar reinforcing member between an inner member and an outer member to compose the center pillar.

SOLUTION: A center pillar 11 is composed of a center pillar outer 12 and a center pillar inner 13, and a center pillar reinforcement 14 as a center pillar reinforcing member is provided inside the center pillar 11. At the upper end of the center pillar 11, a roof side rail 15 is provided, the upper part 14c of the reinforcement 14 is extended in the longitudinal direction of a car body along the roof side rail 15, and it is spot welded being held by the flanges of roof side rail outer 16 and a roof side rail inner 17. A roof reinforcement 21 as a roof reinforcing member is provided between the roof side rails 15, and a roof brace 23 as a connecting member is provided at the lower

side of the both ends of the roof reinforcement 21.

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(22) Date of filing: **19.10.95**

(71) Applicant: **TOYOTA AUTOM LOOM WORKS LTD**

(72) Inventor: **HOZUMI MAMORU**

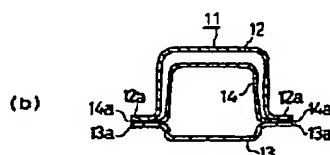
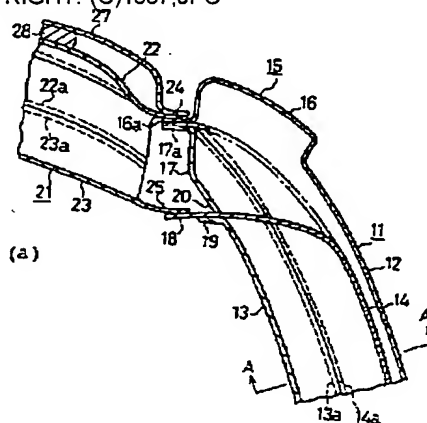
(54) **COMBINING STRUCTURE OF UPPER PART OF CENTER PILLAR**

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(57) Abstract:

PROBLEM TO BE SOLVED: To provide a combining structure of the upper part of a center piece which can disperse the stress by the loading from the side surface.

SOLUTION: A roof reinforcement 21 is formed in a closed section structure consisting of an upper 22 and a lower 23, and flanges 24 and 25 are formed at the ends respectively. A center pillar 11 is formed in a closed section structure consisting of a center pillar reinforcement 14 and a center pillar inner 13, and a connection 18 formed to the center pillar reinforcement 14 by a cutting out process is extended from an opening 20 formed to the center pillar inner 13 by a cutting out process, and it is jointed to a holder 19. And the flange 24 of the upper 22 is jointed to the joints at the front ends of the center pillar inner 13 and the center pillar reinforcement 14, and the flange 25 of the lower 23 is connected with the connection 18, so as to form an opened section structure, and a section structure continued from the center pillar 11 to the roof reinforcement 21 is formed.





PATENT ABSTRACTS OF JAPAN

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(51) Int. Cl.

B62D 25/06(21) Application number: **61041949**(71) Applicant: **HINO MOTORS LTD**(22) Date of filing: **28.02.86**(72) Inventor: **YOKOYAMA TAKESHI****(54) PANEL REINFORCING METHOD FOR
AUTOMOBILE**

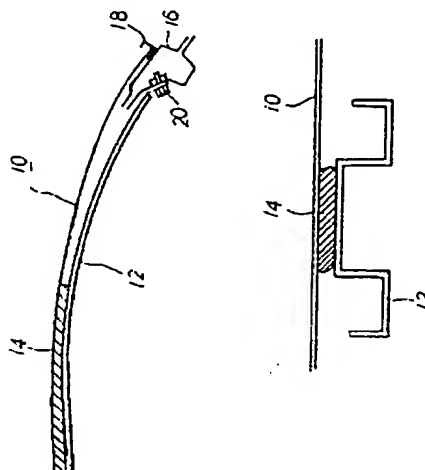
noise from the roof panel 10 is prevented from being generated.

(57) Abstract:

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PURPOSE: To improve a vibration suppressing effect, by arranging a continuously foaming member, which is impregnated with a viscous elastic material, between a panel and a reinforcing member so that their integral forming is promoted, when the reinforcing member is arranged and fixed inside the panel of an automobile.

CONSTITUTION: When a roof panel 10 is reinforced by a reinforcing member 12, first a continuously foaming member 14 of foaming polyurethane or the like, impregnated with a viscous elastic material of asphalt or the like, is adhesively attached to outside the reinforcing member 12. Next the reinforcing member 12 is tightened to the roof panel 10 and compressed so that the continuously foaming member 14 is arranged between the roof panel 10 and the reinforcing member 12. This compressive condition is maintained by viscous elasticity of the asphalt. Next, the roof panel 10 and the reinforcing member 12 are heated in a painting drying furnace, and the continuously foaming member 14 is expanded and closely attached to the roof panel 10 and the reinforcing member 12. In this way, a vibration in the roof panel 10 is suppressed, while a confined



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(21) Application number: **08325556**

(71) Applicant: **NISSAN MOTOR CO LTD**

(22) Date of filing: **05.12.96**

(72) Inventor: **OZAWA EIKI**

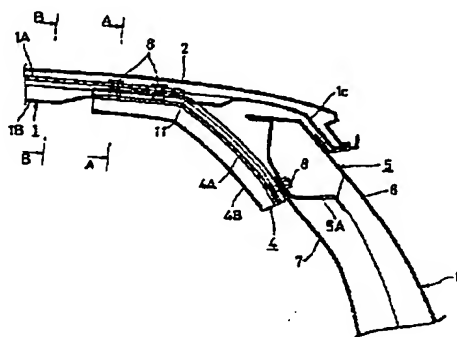
(54) **ROOF BOW INSTALLATION STRUCTURE OF
AUTOMOBILE**

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(57) Abstract:

PROBLEM TO BE SOLVED: To contrive compatibility among the increase in a vehicular roof rigidity, the expansion of a head clearance in a car room and the insurance of the safety of an occupant.

SOLUTION: A roof bow 1 is formed in a closed section by a comparatively thick upper bow 1A and a lower bow 1B thinner than the upper bow 1A and a roof side reinforce 4 by which the roof bow 1 is connected to a roof side rail 5 is formed in a closed section by a comparatively thick upper reinforce 4A and a lower reinforce 4B thinner than the upper reinforce 4A. The upper reinforce 4A and upper bow 1A are combined with the upper reinforce 4A and the rail inner 5A of roof side rail 5 in the closed section of the roof side reinforce 4 and as they are combined a comparatively thick panels with each other, the roof rigidity can be increased and the shock at the secondary collision time can be absorbed by the elastic deformation of the lower bow 1B and the lower reinforce 4B.



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(21) Application number: **2001070962**

(71) Applicant: **NISSAN MOTOR CO LTD**

(22) Date of filing: **13.03.01**

(72) Inventor: **TOFUN YUJI**

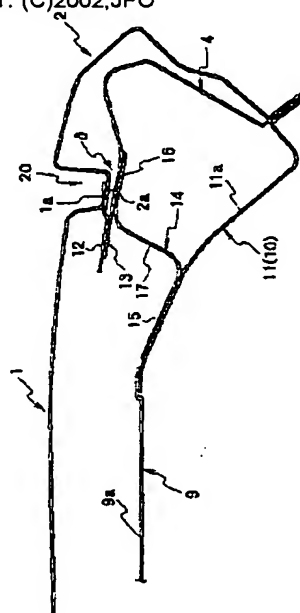
(54) **VEHICLE BODY UPPER PART STRUCTURE**

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(57) Abstract:

PROBLEM TO BE SOLVED: To reconcile securing of a roof outside appearance and securing of the strength and stiffness of a gathering part of a front pillar, a roof side rail, and a front roof rail.

SOLUTION: Since an extension part 13 of a front pillar outer 4 is jointed to an extension part 12 of a body side outer 2 at a position offsetting from a drip groove 20 in a roof center side and to the upper wall 16 of a connection brace 14 to form a trifurcated intersection part 10 through the connection brace 14, the connection brace 14 can be provided at a positioned optimum for strength stiffness at the trifurcated intersection part 10 regardless of the forming position of the drip groove 20 and the drip groove 20 can be set on a vehicle lateral position optimum for the outside appearance regardless of the provided position of the connection brace 14. Reconciliation of improvement of the outside appearance and improvement of the strength stiffness of the gathering part of the front pillar 3, the roof side rail 6 and the front roof rail 9 can be attained.



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(22) Date of filing: **11.11.98**

(71) Applicant: **NISSAN SHATAI CO LTD**

(72) Inventor: **TAKAHASHI MASAHIKO
FUSHIKIDA KIYOSHI**

(54) **CAR BODY STRUCTURE**

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(57) Abstract:

PROBLEM TO BE SOLVED: To improve car body rigidity at a roof corner without causing degradation of operability or increase of number of overlapping plates.

SOLUTION: An extending portion 5e for connection is formed projecting outward from a closed cross sectional part toward a roof front rail 6, on a reinforce 5c provided between a body side outer 5a and a side panel inner 5b of a joint member 5 for connecting a pillar with a roof side rail, a lower panel 6b of the roof front rail 6 is connected with the side panel inner 5b via a brace 7, an upper panel 6a of the roof front rail 6 is connected with the extending portion 5e for connection, and an operation hole 7a for a welding operation of spot welding points 5d, 5f is opened in the brace 7.

